



statistical instruments for industry

MARCH 1967

ELGENCO

NOISE GENERATOR

SHORT FORM CATALOG

ELGENCO INCORPORATED
1550 EUCLID STREET
SANTA MONICA, CALIFORNIA 90404
RETURN REQUESTED

BULK RATE
U.S. POSTAGE
PAID
Santa Monica, Calif.
Permit No. 588

MR. T H NELSON
SYSTEMS CONSULTANT
BOX 1546
POUGHKEEPSIE NY 12603

ELGENCO NOISE GENERATORS

SOLID STATE NOISE GENERATORS



Model 602A 5 Hz to 5 mHz, 3 Ranges \$330

FREQ. RANGES: 20 Hz to 20 kHz, 20 Hz to 500 kHz, 20 Hz to 5 mHz.

OUTPUT SPECTRUM: 20 Hz to 20 kHz ± 1 db, 20 Hz to 500 kHz ± 3 db, 500 kHz to 5 mHz ± 8 db.

OUTPUT LEVEL: (open circuit) 20 kHz range -3 volts, 500 kHz range -2 volts, 5 mHz range -1 volt.

OUTPUT IMPEDANCE: 900 ohms $\pm 10\%$.

MAXIMUM LOAD: (on direct output) no limit.

OUTPUT STEP ATTENUATOR: X1.0, X0.1, X0.01, and X.0001; calibrated to work into open circuit.

Accuracy: $\pm 3\%$ to 100 kHz, $\pm 10\%$ to 5 mHz.

Output Impedance: 200 ohms $\pm 1\%$.

SPECTRAL DENSITY: Approximate spectral density (mv/ $\sqrt{\text{Hz}}$) for 1 volt rms output: 20 kHz band -5 , 500 kHz band -1.2 , 5 mHz band -0.4 .

AMPLITUDE PROBABILITY DISTRIBUTION: Symmetrical non-clipped Gaussian waveform all ranges.

OUTPUT METER: 0-5 volts rms.

Model 603A 5 Hz to 5 mHz, 3 Ranges \$545

FREQ. RANGES: 10 Hz to 20 kHz, 10 Hz to 500 kHz, 10 Hz to 5 mHz.

OUTPUT SPECTRUM: 10 Hz to 500 kHz ± 1 db, 500 kHz to 5 mHz ± 3.5 db.

OUTPUT LEVEL: (open circuit) 3 volts rms all ranges.

OUTPUT IMPEDANCE: 200 ohms $\pm 10\%$.

MAX. LOAD: (on direct output) 700 ohms.

OUTPUT STEP ATTENUATOR: X1.0, X0.1, X0.01, X.0001; calibrated to work into open circuit.

Accuracy: $\pm 3\%$ to 500 kHz, $\pm 5\%$ to 5 mHz.

Output Impedance: 200 ohms $\pm 1\%$.

SPECTRAL DENSITY: Approximate spectral density (mv/ $\sqrt{\text{Hz}}$) for 1 volt rms output: 20 kHz band -5 , 500 kHz band -1.2 , 5 mHz band -0.4 .

AMPLITUDE PROBABILITY DISTRIBUTION: Symmetrical non-clipped Gaussian waveform all ranges.

OUTPUT METER: 0-5 volts rms.



Model 610A 5 Hz to 5 mHz, 8 Ranges \$1,275

FREQ. RANGES: 10 Hz to 2 kHz, 10 Hz to 5 kHz, 10 Hz to 20 kHz, 10 Hz to 50 kHz, 10 Hz to 200 kHz, 10 Hz to 500 kHz, 10 Hz to 2 mHz, and 10 Hz to 5 mHz.

OUTPUT SPECTRUM: Uniform ± 0.5 db from 10 Hz to 500 kHz and ± 2.0 db from 500 kHz to 5 mHz.

OUTPUT LEVEL: 0 to 1 volt rms, adjustable by front panel amplitude control. A dynamic range of 5 to 1 peak to rms value is provided.

OUTPUT STEP ATTENUATOR: X1.0, X0.1, X0.01, X.0001. Accuracy ± 0.25 db/step to 500 kHz; ± 0.063 db/step to 5 mHz.

SOLID STATE NOISE GENERATORS

Model 610A (cont.)

SPECTRAL DENSITY: Approx. for 1 volt rms output.

Band	mv/ $\sqrt{\text{Hz}}$	Band	mv/ $\sqrt{\text{Hz}}$
2 kHz	17.5	200 kHz	1.75
5 kHz	11.0	500 kHz	1.10
20 kHz	5.5	2 mHz	0.55
50 kHz	3.5	5 mHz	0.30

AMPLITUDE PROBABILITY DISTRIBUTION: Symmetrical Gaussian all ranges.

OUTPUT METER: 0 to 1 volt rms. Accuracy $\pm 2\%$ of full scale to 2 mHz; $\pm 5\%$ to 5 mHz.

MAXIMUM LOAD: 500 ohms on direct output.

OUTPUT IMPEDANCE: 50 ohms direct output.

POWER REQUIREMENTS: 115/230 volts $\pm 10/20$ volts, 50 to 1,000 Hertz ac.



Series 624A Fixed Frequency Noise Generators

OUTPUT LEVEL: (open circuit) 3 volts rms.

OUTPUT IMPEDANCE: 200 ohms $\pm 10\%$.

MAX. LOAD: (on direct output) 700 ohms.

OUTPUT STEP ATTENUATOR: X1.0, X0.1, X0.01, and X.0001; calibrated to work into open circuit.

Output Impedance: 200 ohms $\pm 1\%$.

AMPLITUDE PROBABILITY DISTRIBUTION: Symmetrical non-clipped Gaussian waveform.

OUTPUT METER: 0-5 volts rms.

POWER: 115/230 volts $\pm 10/20$ volts, 50 to 1,000 Hertz ac.

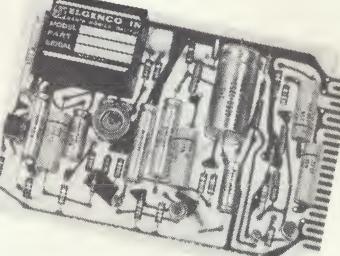
DIMENSIONS: 5 $\frac{1}{2}$ " high x 8 $\frac{1}{2}$ " wide x 11" deep.

Some of the many frequency ranges available are listed below. Write for further information.

MODEL 624A

-12124 20 Hz to 20 kHz	± 1 db	\$174
-11124 10 Hz to 20 kHz	± 1 db	\$209
-12154 20 Hz to 50 kHz	± 1 db	\$194
-11154 10 Hz to 50 kHz	± 1 db	\$229
MODEL 3603A		
-12115 20 Hz to 100 kHz	± 1 db	\$214
-11115 10 Hz to 100 kHz	± 1 db	\$249
-12125 20 Hz to 200 kHz	± 1 db	\$229
-11125 10 Hz to 200 kHz	± 1 db	\$264
-12155 20 Hz to 500 kHz	± 1 db	\$249
-11155 10 Hz to 500 kHz	± 1 db	\$284
MODEL 3602A		
-22124 20 Hz to 50 kHz	± 2 db	\$174
-21154 10 Hz to 50 kHz	± 2 db	\$209
-22115 20 Hz to 100 kHz	± 2 db	\$179
-21115 10 Hz to 100 kHz	± 2 db	\$214
-22125 20 Hz to 200 kHz	± 2 db	\$199
-21125 10 Hz to 200 kHz	± 2 db	\$234
-22155 20 Hz to 500 kHz	± 2 db	\$214
-21155 10 Hz to 500 kHz	± 2 db	\$249
-32155 20 Hz to 500 kHz	± 3 db	\$174
-31155 10 Hz to 500 kHz	± 3 db	\$209
MODEL 3603		
-22115 20 Hz to 50 kHz	± 2 db	\$174
-21154 10 Hz to 50 kHz	± 2 db	\$249
-22125 20 Hz to 200 kHz	± 2 db	\$229
-21125 10 Hz to 200 kHz	± 2 db	\$264
-22155 20 Hz to 500 kHz	± 2 db	\$249
-21155 10 Hz to 500 kHz	± 2 db	\$284
MODEL 3602		
-22124 20 Hz to 20 kHz	± 1 db	\$174
-21154 10 Hz to 20 kHz	± 1 db	\$209
-22115 20 Hz to 100 kHz	± 2 db	\$179
-21115 10 Hz to 100 kHz	± 2 db	\$214
-22125 20 Hz to 200 kHz	± 2 db	\$199
-21125 10 Hz to 200 kHz	± 2 db	\$234
-22155 20 Hz to 500 kHz	± 2 db	\$214
-21155 10 Hz to 500 kHz	± 2 db	\$249
-32155 20 Hz to 500 kHz	± 3 db	\$174
-31155 10 Hz to 500 kHz	± 3 db	\$209
MODEL 3606A		
-52124 20 Hz to 20 kHz	$\pm \frac{1}{2}$ db	\$299
-51124 10 Hz to 20 kHz	$\pm \frac{1}{2}$ db	\$334
-52154 20 Hz to 50 kHz	$\pm \frac{1}{2}$ db	\$319
-51154 10 Hz to 50 kHz	$\pm \frac{1}{2}$ db	\$354
-52115 20 Hz to 100 kHz	$\pm \frac{1}{2}$ db	\$339
-51115 10 Hz to 100 kHz	$\pm \frac{1}{2}$ db	\$374
-52125 20 Hz to 200 kHz	$\pm \frac{1}{2}$ db	\$354
-51125 10 Hz to 200 kHz	$\pm \frac{1}{2}$ db	\$389
-52155 20 Hz to 500 kHz	$\pm \frac{1}{2}$ db	\$374
-51155 10 Hz to 500 kHz	$\pm \frac{1}{2}$ db	\$409
SERIES 3607A		
OUTPUT IMPEDANCE: 200 ohms $\pm 10\%$.		
MAX. LOAD: 70 ohms.		
Some of the many frequency ranges available are listed below. Write for further information.		
MODEL 3607A		
-15316 5 kHz to 1 mHz	± 1 db	\$354
-35316 5 kHz to 1 mHz	± 3 db	\$195
-25356 5 kHz to 5 mHz	± 2 db	\$570
-35356 5 kHz to 5 mHz	± 3 db	\$460

SOLID STATE NOISE GENERATORS



FIXED FREQUENCY NOISE GENERATOR CARDS

AMPLITUDE PROBABILITY DISTRIBUTION: Symmetrical non-clipped Gaussian waveform.

OUTPUT LEVEL: (open circuit) 3 volts rms.

AMPLITUDE CONTROL: Continuously variable.

SIZE: 4 $\frac{1}{2}$ " x 6 $\frac{1}{2}$ " x 1".

POWER: -30 volts dc.

SERIES 3602A, 3603A, and 3606A

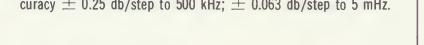
OUTPUT IMPEDANCE: 600 ohms $\pm 10\%$.

MAX. LOAD: 300 ohms.

Some of the many frequency ranges available are listed below. Write for further information.

MODEL 3602A

-12124 20 Hz to 20 kHz	± 1 db	\$174
-11124 10 Hz to 20 kHz	± 1 db	\$209
-12154 20 Hz to 50 kHz	± 1 db	\$194
-11154 10 Hz to 50 kHz	± 1 db	\$229
MODEL 3603A		
-12115 20 Hz to 100 kHz	± 1 db	\$214
-11115 10 Hz to 100 kHz	± 1 db	\$249
-12125 20 Hz to 200 kHz	± 1 db	\$229
-11125 10 Hz to 200 kHz	± 1 db	\$264
-12155 20 Hz to 500 kHz	± 1 db	\$249
-11155 10 Hz to 500 kHz	± 1 db	\$284
MODEL 3602		
-22124 20 Hz to 50 kHz	± 2 db	\$174
-21154 10 Hz to 50 kHz	± 2 db	\$209
-22115 20 Hz to 100 kHz	± 2 db	\$179
-21115 10 Hz to 100 kHz	± 2 db	\$214
-22125 20 Hz to 200 kHz	± 2 db	\$199
-21125 10 Hz to 200 kHz	± 2 db	\$234
-22155 20 Hz to 500 kHz	± 2 db	\$214
-21155 10 Hz to 500 kHz	± 2 db	\$249
-32155 20 Hz to 500 kHz	± 3 db	\$174
-31155 10 Hz to 500 kHz	± 3 db	\$209
MODEL 3603		
-22115 20 Hz to 50 kHz	± 2 db	\$174
-21154 10 Hz to 50 kHz	± 2 db	\$249
-22125 20 Hz to 200 kHz	± 2 db	\$229
-21125 10 Hz to 200 kHz	± 2 db	\$264
-22155 20 Hz to 500 kHz	± 2 db	\$249
-21155 10 Hz to 500 kHz	± 2 db	\$284
MODEL 3602		
-22124 20 Hz to 20 kHz	± 1 db	\$174
-21154 10 Hz to 20 kHz	± 1 db	\$209
-22115 20 Hz to 100 kHz	± 2 db	\$179
-21115 10 Hz to 100 kHz	± 2 db	\$214
-22125 20 Hz to 200 kHz	± 2 db	\$199
-21125 10 Hz to 200 kHz	± 2 db	\$234
-22155 20 Hz to 500 kHz	± 2 db	\$214
-21155 10 Hz to 500 kHz	± 2 db	\$249
-32155 20 Hz to 500 kHz	± 3 db	\$174
-31155 10 Hz to 500 kHz	± 3 db	\$209
MODEL 3606A		
-52124 20 Hz to 20 kHz	$\pm \frac{1}{2}$ db	\$299
-51124 10 Hz to 20 kHz	$\pm \frac{1}{2}$ db	\$334
-52154 20 Hz to 50 kHz	$\pm \frac{1}{2}$ db	\$319
-51154 10 Hz to 50 kHz	$\pm \frac{1}{2}$ db	\$354
-52115 20 Hz to 100 kHz	$\pm \frac{1}{2}$ db	\$339
-51115 10 Hz to 100 kHz	$\pm \frac{1}{2}$ db	\$374
-52125 20 Hz to 200 kHz	$\pm \frac{1}{2}$ db	\$354
-51125 10 Hz to 200 kHz	$\pm \frac{1}{2}$ db	\$389
-52155 20 Hz to 500 kHz	$\pm \frac{1}{2}$ db	\$374
-51155 10 Hz to 500 kHz	$\pm \frac{1}{2}$ db	\$409
MODEL 3607A		
OUTPUT IMPEDANCE: 200 ohms $\pm 10\%$.		
MAX. LOAD: 70 ohms.		
Some of the many frequency ranges available are listed below. Write for further information.		
MODEL 3607A		
-15316 5 kHz to 1 mHz	± 1 db	\$354
-35316 5 kHz to 1 mHz	± 3 db	\$195
-25356 5 kHz to 5 mHz	± 2 db	\$570
-35356 5 kHz to 5 mHz	± 3 db	\$460



ELGENCO, INC.

1550 Euclid Street • Santa Monica, Calif. • (213) 451-1635 • TWX (213) 879-0091

ELGENCO NOISE GENERATORS

SOLID STATE NOISE GENERATORS



MODEL 632A Dual Output DC to 400 Hz and 10 Hz to 35 kHz

LOW FREQUENCY OUTPUT \$2,595

AMPLITUDE PROBABILITY DISTRIBUTION: Gaussian $\pm 1\%$.

OUTPUT SPECTRUM: Uniform ± 0.1 db from DC to 350 Hz.

MAXIMUM OUTPUT: 1.0 volts rms. A dynamic range of 5 to 1 peak to rms value is provided.

MAXIMUM SPECTRAL DENSITY: Approx. 1.5×10^{-3} volts 2 /Hz.

OUTPUT MEAN: Less than 5 mv.

OUTPUT IMPEDANCE: Approximately 1,000 ohms.

HIGH FREQUENCY OUTPUT

AMPLITUDE PROBABILITY DISTRIBUTION: Gaussian $\pm 2\%$.

OUTPUT SPECTRUM: Uniform ± 0.5 db from 10 to 35,000 Hz.

MAXIMUM OUTPUT: 1.0 volts rms. A dynamic range of 5 to 1 peak to rms value is provided.

MAXIMUM SPECTRAL DENSITY: Approx. 2×10^{-5} volts 2 /Hz.

OUTPUT MEAN: Less than 1 mv.

OUTPUT IMPEDANCE: Approximately 100 ohms.

NOISE REGULATOR: rms output level continuously stabilized against a reference voltage.

OVERLOAD INDICATOR: Panel overload indicator lights when input noise level to regulator is out of regulation range.

POWER: 115/230 volts $\pm 10/20$ volts, 50 to 1,000 Hertz ac.

DIMENSIONS: 5 $\frac{1}{4}$ " high x 17" wide x 11" deep. 19" wide with rack mounting flanges mounted (supplied).



ENCAPSULATED NOISE SOURCE MODULES

Series 1602A, 1603A, and 1606A \$95 to \$340

Various frequency ranges and output flatness available. Size: 1 $\frac{1}{4}$ " x 1 $\frac{1}{2}$ " x $\frac{3}{4}$ ". Write for details.

MODEL 3609A Power Supply Card \$67

(supplies power for up to 2 noise generator cards)

SIZE: 4 $\frac{1}{2}$ " x 6 $\frac{1}{2}$ ".

INPUT: 115/230 volts $\pm 10/20$ volts, 50 to 1000 Hz.

OPTIONS & ACCESSORIES FOR MODELS 602A, 603A, 610A, & SERIES 624A

Rechargeable battery option add \$135

Full rack width cabinet and rack mounting hardware option add \$35

Adapter kit, dual unit and rack mounting hardware \$7

Adapter kit, single unit rack mounting (includes blank panel to make dual unit) \$56

Rechargeable battery kit \$145

VACUUM TUBE NOISE GENERATORS



Model 301A DC to 40 Hz \$2,195

AMPLITUDE PROBABILITY DISTRIBUTION: Gaussian $\pm 1\%$.

OUTPUT SPECTRUM: Uniform ± 0.1 db from 0 to 35 Hz.

MAX. OUTPUT: 12 volts rms into a 1 megohm input resistance. Dynamic range of 5 to 1 peak-to-rms is provided.

MAX. SPECTRAL DENSITY: Approx. 2.5 volts 2 /Hz.

D.C. UNBALANCE: Less than 50 mv.

NOISE REGULATOR: rms output level continuously stabilized against a reference voltage.

OVERLOAD INDICATOR: Panel overload indicator lights when input noise level to regulator is out of regulation range.

POWER: 115 v ± 10 v, 60 Hertz ac.

MOUNTING: Standard relay rack panel 7" high x 19" wide. Can be supplied in deluxe cabinet as shown for \$75 extra.

Model 321A DC to 120 Hz \$2,295

AMPLITUDE PROBABILITY DISTRIBUTION: Gaussian $\pm 1\%$.

OUTPUT SPECTRUM: Uniform ± 0.1 db from 0 to 105 Hz.

MAX. OUTPUT: 12 volts rms into a 1 megohm input resistance. Dynamic range of 5 to 1 peak-to-rms is provided.

MAX. SPECTRAL DENSITY: Approx. 1.0 volts 2 /Hz.

D.C. UNBALANCE: Less than 50 mv.

NOISE REGULATOR: rms output level continuously stabilized against a reference voltage.

OVERLOAD INDICATOR: Panel overload indicator lights when input noise level to regulator is out of regulation range.

POWER: 115 v ± 10 v, 60 Hertz ac.

MOUNTING: Standard relay rack panel 7" high x 19" wide. Can be supplied in deluxe cabinet as shown for \$75 extra.

Model 331A 10 Hz to 20 kHz \$1,395

OUTPUT SPECTRUM: Uniform to plus or minus 0.5 db from 10 to 20,000 Hz.

OUTPUT LEVEL: 0 to 5 volts rms, adjustable by self contained attenuator. A dynamic range of 7 to 1 peak to rms value is provided.

SPECTRAL DENSITY: Approx. 1 mv/ $\sqrt{\text{Hz}}$ for 5 volt rms output.

AMPLITUDE PROBABILITY DISTRIBUTION: Gaussian $\pm 1\%$.

NOISE REGULATOR: rms output level continuously stabilized against a zener reference voltage.

OVERLOAD INDICATOR: Panel overload indicator lights when input noise level to regulator is out of regulation range.

OUTPUT METER: 0 to 5 volts rms.

MAX. LOAD: 10,000 ohms.

POWER REQUIREMENTS: 115/230 volts $\pm 10/20$ volts, 50 to 1,000 Hertz ac.

MOUNTING: Standard relay rack panel 7" high x 19" wide and is 15" deep. Can be supplied in deluxe cabinet as shown for \$75 extra.

MODEL 331A-23 10 Hz to 2 kHz \$1495

MODEL 331A-53 10 Hz to 5 kHz \$1495

MODEL 331A-54 10 Hz to 50 kHz \$1495

MODEL 331A-25 10 Hz to 200 kHz \$1595

MODEL 331A-55 10 Hz to 500 kHz \$1745



Model 602A with full rack width mounting option.

VACUUM TUBE NOISE GENERATORS



Model 311A Dual output DC to 40 Hz and 10 Hz to 20 kHz \$2,595

LOW FREQUENCY OUTPUT

AMPLITUDE PROBABILITY DISTRIBUTION: Gaussian $\pm 1\%$.

OUTPUT SPECTRUM: Uniform ± 0.1 db from 0 to 35 Hz.

MAX. OUTPUT: 12 volts rms into a 1 megohm input resistance.

Dynamic range of 5 to 1 peak-to-rms is provided.

MAX. SPECTRAL DENSITY: Approx. 2.5 volts 2 /Hz.

D.C. UNBALANCE: Less than 50 mv.

HIGH FREQUENCY OUTPUT

AMPLITUDE PROBABILITY DISTRIBUTION: Gaussian $\pm 2\%$.

OUTPUT SPECTRUM: Uniform ± 0.5 db from 10 to 20,000 Hz.

MAX. OUTPUT: 15 volts rms.

MAX. SPECTRAL DENSITY: 7.5×10^{-3} volts 2 /Hz.

NOISE REGULATOR: rms output level continuously stabilized against a reference voltage.

OVERLOAD INDICATOR: Panel overload indicator lights when input noise level to regulator is out of regulation range.

POWER: 115 v ± 10 v, 60 Hertz ac.

MOUNTING: Standard relay rack panel 7" high x 19" wide. Can be supplied in deluxe cabinet as shown for \$75 extra.

Model 312A Dual output DC to 120 Hz and 10 Hz to 20 kHz \$2,695

LOW FREQUENCY OUTPUT

AMPLITUDE PROBABILITY DISTRIBUTION: Gaussian $\pm 1\%$.

OUTPUT SPECTRUM: Uniform ± 0.1 db from 0 to 105 Hz.

MAX. OUTPUT: 12 volts rms into a 1 megohm input resistance.

Dynamic range of 5 to 1 peak-to-rms is provided.

MAX. SPECTRAL DENSITY: Approx. 1.0 volts 2 /Hz.

D.C. UNBALANCE: Less than 50 mv.

HIGH FREQUENCY OUTPUT

AMPLITUDE PROBABILITY DISTRIBUTION: Gaussian $\pm 2\%$.

OUTPUT SPECTRUM: Uniform ± 0.5 db from 10 to 20,000 Hz.

MAX. OUTPUT: 15 volts rms.

MAX. SPECTRAL DENSITY: 7.5×10^{-3} volts 2 /Hz.

NOISE REGULATOR: rms output level continuously stabilized against a reference voltage.

OVERLOAD INDICATOR: Panel overload indicator lights when input noise level to regulator is out of regulation range.

POWER: 115 v ± 10 v, 60 Hertz ac.

MOUNTING: Standard relay rack panel 7" high x 19" wide. Can be supplied in deluxe cabinet as shown for \$75 extra.



Models 602A and 610A combined by dual unit adapter kit.



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ELGENCO SALES REPRESENTATIVES

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SOUTHERN NEW JERSEY AREA - (609) 877-5971, 50 Messenger Lane, Willingboro, N.J. 08046

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OTTAWA - (613) 725-1288, 376 Churchill Ave.

TORONTO AREA - (416) 636-4910, 65 Martin Ross Ave., Downsview, Ontario